IFW

Richard Alan McDonald
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January 17, 2005
Ref. 10/684,851

U.S. Patent & Trade Office
Attn. Ms. Jeanette Chapman
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Ms. Chapman:

In your first action you cited two concerns about my patent submittal..

I have addressed the concerns expressed in your 11/02/04 office action summary of my patent application (10/684,851). With respect to 35 USC 103, I believe that the subject matter sought to be patented is distinctly different than the prior art. I believe that my device, the breakaway support for overhead lines, is radically different from the existing art. I believe that the breakaway support for overhead lines in no way would be obvious to a person having ordinary skill in this art. I believe that the breakaway device for overhead lines should be awarded a patent. To support my belief in the uniqueness of this art I have responded to the concerns and comments that you mentioned in your first action.

As per our telephone conversation on 13 December 2004, and follow-up conversations, I have addressed the prior art that you cited in the body of your letter. Specifically you cited Andrews (5325064) and Faller (5855443). You also make a brief mention of Papin (5775035) and Megahan (1029207 & 1123342).

You most often cite Faller. There are many differences between the art of Faller and the breakaway support of overhead lines. Specifically:

A) Faller makes no claim for a stranded link. Faller even states that you can thread his entire rod. You can not cut threads in a stranded rod. – I do make a claim for a stranded link. Faller's device employees a solid shear rod. My device uses a stranded link member.

B) Faller makes no claim to abrasion protection of the connection link. As a result of wind load, vibration, expansion and contraction part 32 of his assembly will move. Faller's shear plane is along 52-54. As 32 creeps in the opposite direction as 40 (pg 2), no abrasion protection exists for the shear rod 34. The shear plan 52-54 will impact the shear rod 34. – I do claim abrasion protection for the connection link. My device does protect the connection link from being abraded by the supporting structure.

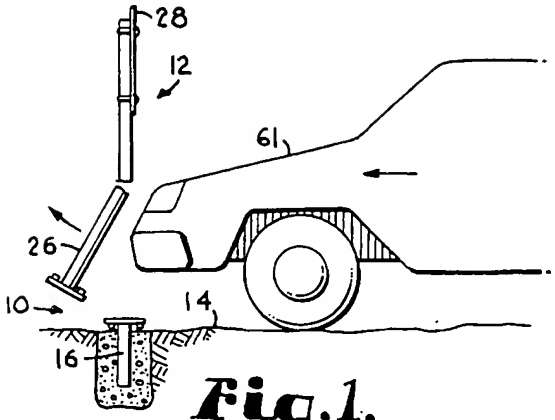


Fig.1.

Fig.4.

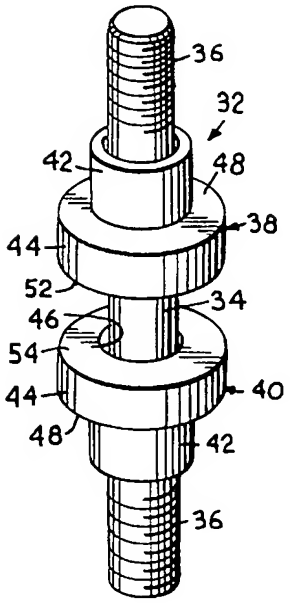


Fig.2.

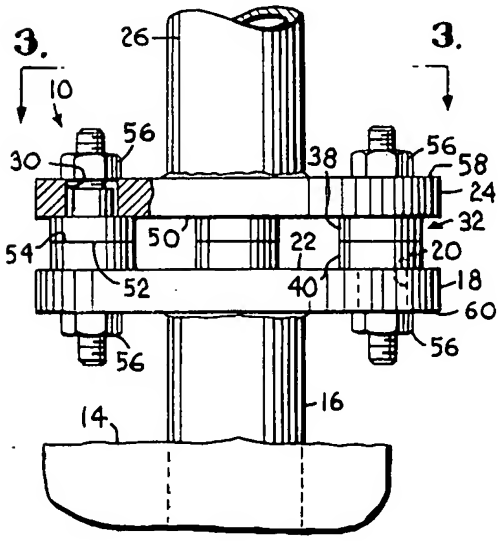
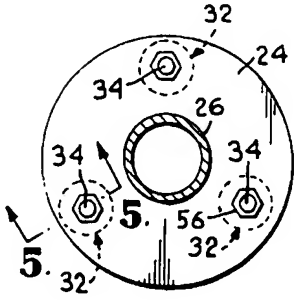


Fig.3.



C) Faller's device requires shear plates. My device does not.

D) Faller requires at least two of his devices at each installation. I require a minimum of 1 device at each installation. In order to function properly, Faller's device requires that the shear rods work in concert (As Faller states,"2 - 4 or possibly more shear rods."). My device works independently. I can deploy one of my devices to support one telecommunication's trunk line. Faller requires a minimum of 2 of his devices.

E) Faller's device has no "rollout" requirement. My device does have a rollout requirement. My device does evaluate the rollout impact. My device does consider the depth of the abrasion protection nipple. The nipple can not be so deep as to impede the breakaway "rollout" feature of the stabilizing assembly. The nipple can not bind on the interior walls of the supporting structure.

F) Faller's device does not impede the lateral movement of the conductor. - - Faller's device does not work with conductors but with poles. My device specifically retards the lateral movement of the conductor. Typically this movement is the result of wind or a fault surge.

G) Faller's device is normally exposed to compressive stresses. My device is normally exposed to tensile stresses.

H) Faller's device is secured by two plates (p2). One end of my device is typically connected to a conductor floating in the air.

I) Faller's shear plates are designed for the horizontal impact of a car. My tension link member is designed for the vertical impact of a tree.

J) Faller's shear rod is threaded and secured at both ends by a nut. One end of my link member is inserted into a cavity of a threaded rod and secured by a cementing agent and a compression connection. The other end of my link member is secured in the body of the stabilizing assembly.

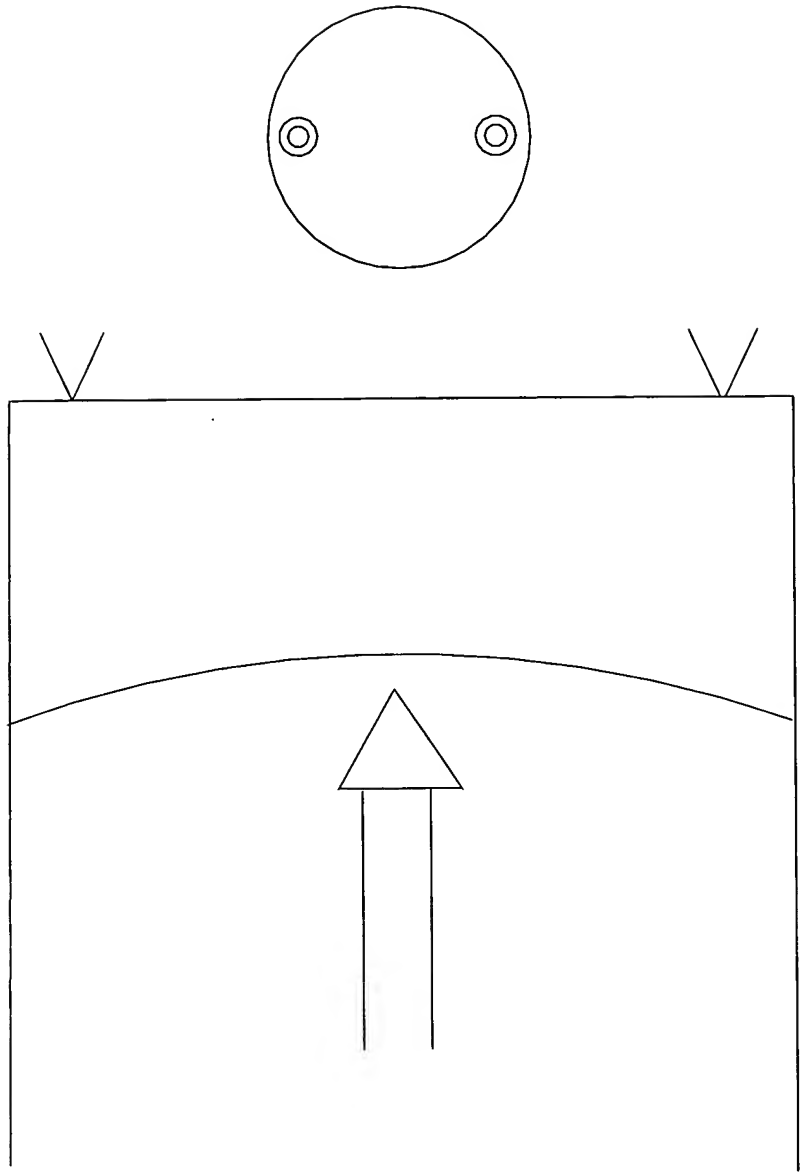
K) My assembly has drain holes to prevent an ice dam building up and over stressing the link member. Faller does not address this concern.

L) Faller's device is specifically designed to support poles. My device is specifically designed to support conductors.

M) Faller's device speaks to the use of the shear plates upper and lower surfaces. I do not employee shear plates. I do not address shear plate surfaces.

N) Faller's shear plate breakaway feature will not work in the vertical plane. My link member breakaway feature is specifically designed to work in the vertical plane.

O) Faller does not claim a stabilizing assembly. My device does make this claim. Faller states that his device has apertures that "vary from two to four in number." Two apertures provide for a maximum of 2 shear rods. Two shear rods provide little if any protection to limit the moment produced in the connection link for a failure demonstrated on page 5. Faller did not mention a stabilizing assembly because he did not design his device to resist a moment. Faller repeatedly states that his device is intended to have a shear failure. Specifically Faller states, "if a dual support is used and only one support is impacted by a vehicle, it is more likely only shear forces will cause separation." - - I specifically mention a stabilizing assembly that will provide a footprint large enough to protect the connection link against any non-catastrophic moments.



Likewise there are several differences between the art of Andrew (pg 7) and the breakaway support for overhead lines. Specifically:

A) Andrew's device is a complicated system of connector springs, multiple body portions, nubs and slots. My device is a combination of a stranded connection link, an abrasion protection nipple, a lateral movement attenuation device and a stabilizing body to address moments produced by the wind.

B) Andrew's device only works with low voltage (< 600v) lines. Specifically he mentions service entry cables, telephone, and television cables, tractor-trailer electrical and pneumatic interconnecting lines. My device will work with high or low voltage lines. My device does not work with tractor-trailer electrical and pneumatic interconnecting lines.

C) Andrew's device does not employ a connection link. My device uses a stranded connection link that is designed to fail.

D) Andrew's device can be reused over again. My device fails and must be replaced with a new one.

E) Andrew's device de-energizes the conductor. My device relies on the protective relays or up-line fuses to de-energize the conductor.

F) Andrew's device has the conductors physically separate with the energized end still up in the air. My device allow the conductors to stay connected and for the conductors to fall to the ground

US005315064A

United States Patent [19]

Andrews

[11] Patent Number: 5,315,064

[45] Date of Patent: May 24, 1994

[54] **SUSPENDED LINE BREAKAWAY DEVICE**

[75] Inventor: **Dean D. Andrews, Topeka, Kans.**

[73] Assignee: **William D. Piper, Memphis, Tenn.**

[21] Appl. No.: **789,581**

[22] Filed: **Nov. 8, 1991**

[51] **Int. Cl.**[5] **H02G 7/04; H01R 13/62**

[52] **U.S. Cl.** ..... **174/40 TD**; 174/40 R; 174/44; 174/45 TD; 403/DIG. 3; 403/375; 439/258; 439/353

[58] **Field of Search** ..... 174/40 TD, 40 R, 44, 174/45 R, 45 TD; 439/155, 160, 258, 474, 923, 348, 350, 352, 353, 354; 403/319, 323, 361, 375, DIG. 3

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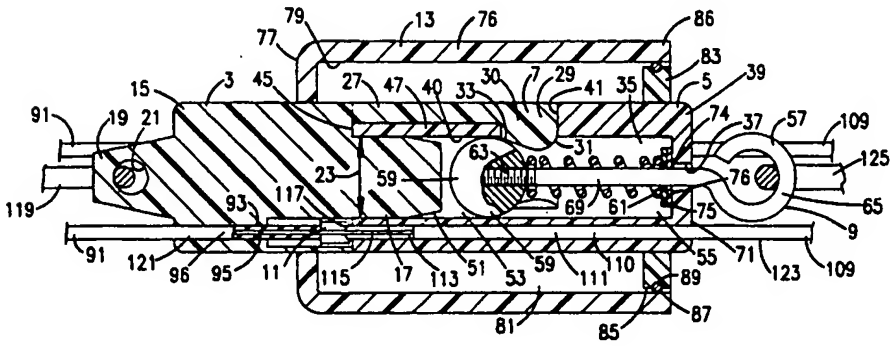
Primary Examiner—Leo P. Picard
Assistant Examiner—Hyung S. Sough
Attorney, Agent, or Firm—Kokjer, Kircher, Bowman & Johnson

[57] **ABSTRACT**

An improved suspended line cable breakaway device includes a first body portion for connecting to a first end of a support cable and a second body portion for connecting to a second end of the support cable. The first body portion includes resilient fingers having nubs, which are releasably received by slots contained in a cavity wall of the second body portion. A biased spreader, slidably contained in a cavity in the second body portion, is displacable axially along the cavity by an external force along the support cable to urge the nubs outwardly such that the second body portion is disengaged from the first body portion, simultaneously disconnecting component lines of a first end of a suspended line from corresponding component lines of a second end of the suspended line. A shield protects the component line connections, which are spaced internal to the device, from the elements. One embodiment provides a breakaway device for a three-component line and a first modified embodiment provides a breakaway device for a four-component line. A second modified embodiment provides a breakaway device without internal component line connections.

15 Claims, 2 Drawing Sheets



You make a brief reference to Papin (pg 9) and Megahan (pg 10). But their devices have little in common to my breakaway support. Specifically:

A) Papin's device (5775035) is a plastic pole. My device is not plastic. My device is not a pole. My device would work on a plastic pole or a plastic crossarm. My device is a piece of hardware that is mounted on the poles/crossarm.

B) Papin's device does not include a connection point that will limit the lateral movement of the overhead line it is supporting. My device does.

C) Neither Papin's device nor Megahan's device includes a sacrificial stranded connection link. My device does.

D) Neither Papin's device nor Megahan's device includes a rollout requirement. My device does.

E) Neither Papin's device nor Megahan's device includes a stabilizing assembly. My device does.

F) Neither Papin's device nor Megahan's device includes an abrasion protection nipple. My device does.

US005775035A

United States Patent [19]

Papin

[11] Patent Number: 5,775,035

[45] Date of Patent: Jul. 7, 1998

[54] **PLASTIC POWER POLE SYSTEM**

[76] Inventor: Neal Papin, 1212 N. Linn St., Bay City, Mich. 48706

[21] Appl. No.: 762,317

[22] Filed: Dec. 9, 1996

[51] Int. Cl.[6] E04H 12/24

[52] U.S. Cl. 52/100; 52/40; 52/736.2; 52/726.4; 52/731.4; 248/909; 248/295.11

[58] Field of Search 52/40, 736.2, 100, 52/697, 309.1, 726.4, 731.4, 736.1, 98; 248/909, 295.11, 125.3, 125.1

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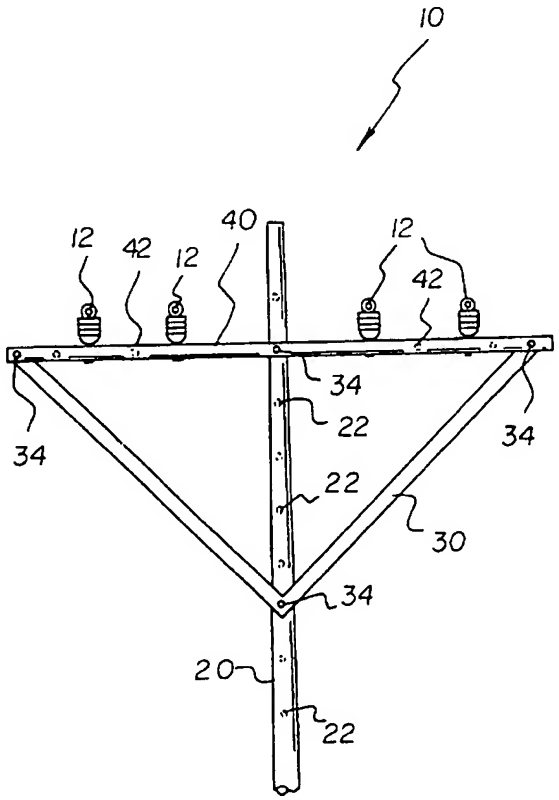
Primary Examiner—Robert Canfield

[57] ABSTRACT

A plastic power pole system has a pole, a syncline support member secured to the upper portion of the pole, and a horizontal support member secured to both the pole and the syncline support member. The horizontal support member supports a plurality of conventional insulators which project vertically upward. The pole further includes a number of knockout members, the knockout members removable to form apertures for receiving a fastener.

8 Claims, 3 Drawing Sheets



O. P. MEGAHAN.

INSULATOR SUPPORT.

APPLICATION FILED JULY 18, 1911.

1,029,207. Patented June 11, 1912.

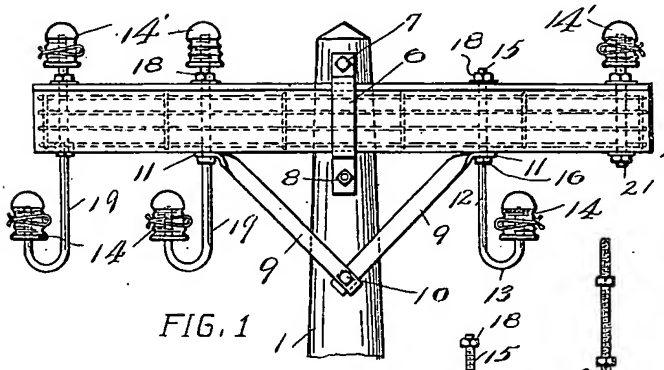


FIG. 1

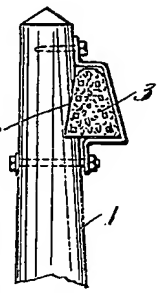


FIG. 2

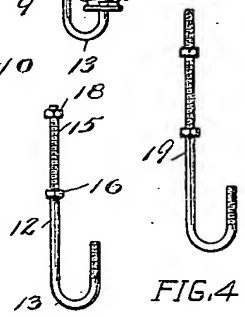


FIG. 3

FIG. 4

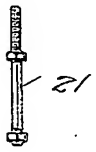


FIG. 5

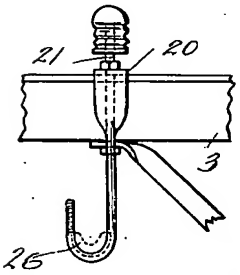


FIG. 6

FIG. 7

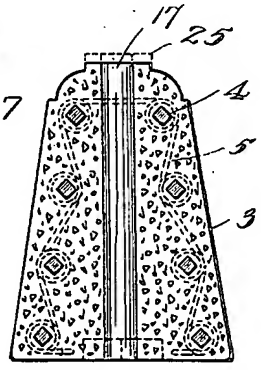


FIG. 8

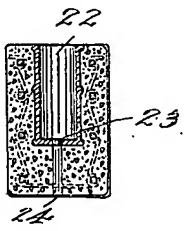


FIG. 9

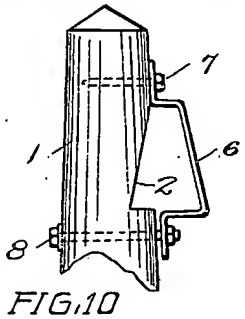


FIG. 10

WITNESSES:

Clarence M. Shigley

E. H. Straws

INVENTOR.

OLIVER P. MEGAHAN

BY

Thomas R. Harris

ATTORNEY.

Given the distinct differences in the devices (The breakaway support has a stabilizing assembly, a stranded connection link, an abrasion protection nipple, ice dam protection and lateral movement attenuation.), given the fact that Faller, Andrew, Papin and Megahan never designed a device to include these items and the fact that these difference can in no way be construed as being obvious to a person having ordinary skills in the art, then Faller's, Andrew's, Papin's and Megahan's patents should not delay nor adversely affect my patent petition.

Furthermore you rejected my patent stating that my "claim(s) are narrative in form and replete with indefinite and functional or operational language." With respect to 35 U.S.C. 112, I have taken your suggestion and secured the services of a patent attorney. I believe that the following claims satisfy the requirements addressed in your letter.

I claim:

1. A breakaway support assembly for securing overhead lines to a supporting structure comprising:

a support connector affixed to said supporting structure for securing the assembly to said supporting structure, said support connector having a solid portion and a hollowed portion;

a stabilizing assembly, said stabilizing assembly having an overhead line connection point; and

a link member mounted at one end in said hollowed section of said support connector and at the other end in said stabilizing assembly;

whereby said link member will yield when force is applied to said overhead line connection point.

2. The assembly of claim 1 wherein the hollowed portion of said support connector is disposed to internally receive a link member having a diameter less than that of said support connector.

3. The assembly of claim 1 wherein said overhead line connection point is an independent component secured to said stabilizing assembly.

4. The assembly of claim 1 wherein the link member has a lower tensile strength than the other components of the breakaway support assembly.

5. The assembly of claim 4 wherein the link member is stranded.

6. The assembly of claim 5 wherein the metal link member is corrosion resistant.

7. The assembly of claim 4 wherein the stabilizing assembly comprises:
a generally oval shaped metal component; and
a nipple protruding from said metal component,

whereby said nipple prevents abrasion of the link member by the supporting structure.

8. The assembly of claim 4 further having a means for limiting the lateral movement of the overhead lines.

9. The assembly of claim 4 wherein said link member will only yield to force in excess of the tensile strength of said link member.

10. A breakaway support assembly for securing overhead lines to a supporting structure comprising:

a support connector attached to said supporting structure for securing the assembly to the supporting structure;

an overhead line connection point; and

a link member secured to said support connector at one end and secured to the overhead line connection point at the other end;

whereby said link member will yield when force in excess of the tensile strength of said link member is applied to said overhead line connection point.

11. The assembly of claim 10 further having a means for controlling the level of force at which the link member will yield.

12. The assembly of claim 10 further comprising a stabilizing assembly which includes an overhead line connection point, one end of said stabilizing assembly is disposed to receive and secure one end of said link member, the other end of said stabilizing assembly includes said overhead line connection point.

13. The assembly of claim 12 wherein said overhead line connection point is a separate member secured to said stabilizing assembly.

14. The assembly of claim 12 wherein the link member has a lower tensile strength than the other components of the breakaway support assembly.

15. The assembly of claim 14 wherein the link member is composed of corrosion resistant metal.

16. The assembly of claim 12 wherein the stabilizing assembly comprises:
a generally oval shaped metal component; and
a nipple protruding from said metal component,

whereby said nipple prevents abrasion of the link member by the supporting structure.

17. The assembly of claim 16 further having a means for limiting the lateral movement of the overhead conductor.

18. The assembly of claim 16 further having a means for limiting the tensile stress produced in the link member as a result of horizontal forces.

19. The assembly of claim 16 wherein said stabilizing assembly includes a plurality of symmetrical cavities for decreasing the weight of said stabilizing assembly.

20. The assembly of claim 16 wherein said stabilizing assembly includes a plurality of drain holes for decreasing the likelihood of an ice dam.

21. A breakaway support assembly for securing overhead lines to a supporting structure comprising:

a support connector for securing the assembly to the supporting structure wherein said support connector is threaded at the end in contact with said supporting structure and a portion is hollowed out at the other end;

a stabilizing assembly which includes an overhead line connection point; and

a link mounted at one end in said hollowed section of said support connector and at the other end in said stabilizing assembly;

whereby said link will yield when force is applied to said overhead line connection point.

22. The assembly of claim 21 wherein the link has a lower tensile strength than the other components of the assembly.

23. A breakaway support assembly for securing overhead lines to a supporting structure comprising:

a breakaway element that has a lower tensile strength than the other components of the assembly;

a means for attaching said breakaway element to the overhead line; and

a means for securing said breakaway element to the supporting structure.

whereby said breakaway element will yield upon the application of a load less than that required to damage the supporting structure thus preventing damage to the supporting structure when unintended force is applied to said breakaway support assembly.

24. The assembly of claim 23 further having a means for controlling the level of force at which the breakaway element will yield.

I believe that I have satisfied your requirements as stated in you first action. Please let me know what if any additional material is needed.

Sincerely,

Richard Alan McDonald
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804-364-3209 (h)
note: We have moved from 13430 Black Gum Ct. - - Chantilly, VA 20151
to 12821 Huntmaster Lane - - Richmond, VA 23233